

Advancing Radar Technologies for Space Exploration

Completed Technology Project (2011 - 2015)



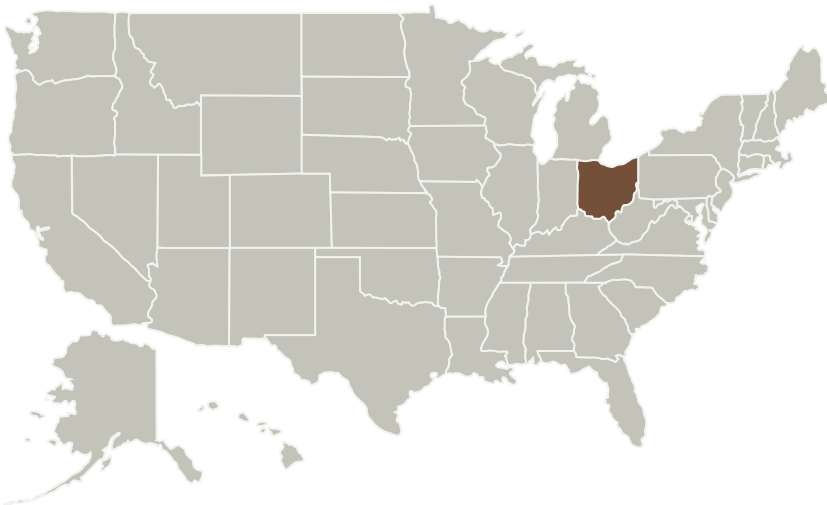
Project Introduction

Remote sensing technologies remain the primary means by which scientific knowledge about the surrounding universe is gathered in lieu of human exploration. Radar remote sensing occupies a critical juncture between the hardware ability to detect signals and the digital computing technology to process these signals in real time. This proposal advances possible improvements to radar remote sensing technology and their potential uses to increase the scientific returns from space exploration. Of particular interest are "software defined" Radar systems, capable of dynamic reconfiguration for incredible adaptability, and multiple-input multiple-output (MIMO) radar methods which show promise to greatly increase the capture rate and sensitivity of imaging technologies. The fusion of these two concepts presents a unique opportunity for technical validation in a field where theory abounds but demonstration is scarce.

Anticipated Benefits

This project aims to advance possible improvements to radar remote sensing technology and their potential uses to increase the scientific returns from space exploration.

Primary U.S. Work Locations and Key Partners



Primary U.S. Work Locations

Ohio



Project Image Advancing Radar Technologies for Space Exploration

Table of Contents

Project Introduction	1
Anticipated Benefits	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Images	2
Project Website:	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Responsible Program:

Space Technology Research Grants



Images



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Project Image Advancing Radar
Technologies for Space Exploration
(<https://techport.nasa.gov/image/1714>)

Project Website:

<https://www.nasa.gov/directorates/spacetech/home/index.html>

Project Management

Program Director:

Claudia M Meyer

Program Manager:

Hung D Nguyen

Principal Investigator:

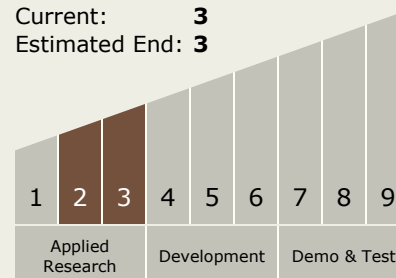
Joel A Johnson

Co-Investigator:

Kyle B Stewart

Technology Maturity (TRL)

Start: 2
Current: 3
Estimated End: 3



Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves